

Claims:

1. A document image capture system, comprising:

an input for receiving an image from a camera;

at least one image buffer for storing data representing an image frame;

a motion detector coupled to said at least one image buffer for processing said image to detect motion between frames of said image;

an image processor coupled to said at least one image buffer for processing an image therein to extract document information from the image; and

a control device responsive to the output from said motion detector for controlling said image processor to begin processing when said motion detector detects said image has become stationary after movement.

2. The document image capture system according to claim 1, wherein said control device is operable to halt said image processor if said motion detector detects image motion from said input while said image processor is performing image processing.

3. The document image capture system according to claim 1, wherein said at least one image buffer comprises a first buffer for storing a first frame of said image and a second buffer for storing a second frame of said image, and wherein said motion detector is operable to compare

the contents of said first and second buffers to detect said motion between said frames of said image.

4. The document image capture system according to claim 1, wherein said motion detector is operable to determine whether said movement corresponds to a first type of motion and a second type of motion.

5. The document image capture system according to claim 4, wherein said first type of motion is motion quantified as being larger than a threshold value and said second type of motion is motion quantified to be less than or equal to the threshold value.

6. The document image capture system according to claim 4, wherein said control device is operable, in response to said motion detector detecting said movement to be said first type of motion, to control said image processor to perform optical character recognition on said image when said image becomes stationary.

7. The document image capture system according to claim 6, wherein said control device is operable, in response to said motion detector detecting said movement to be said second type of motion, to

control said image processor to re-map previous optical character recognition results to said image when said image become stationary.

8. The document image capture system according to claim 7, wherein said control device is operable to freeze said image in said image buffer prior to controlling said image processor to begin image processing.

9. A method for automatically controlling a document image capture system that communicates with a camera that produces a sequence of live images, said method comprising:

defining a live operating mode and a frozen operating mode;

transitioning from the live operating mode to the frozen operating mode once an image from said sequential frames is frozen;

processing the frozen image while in the frozen mode in accordance with a selected image processing operation; and

concurrently while in the frozen mode, monitoring a current live image from the sequence of live images to detect motion in the frozen image;

wherein processing results from the selected image processing operation are made available for further use when processing completes and a transition between the frozen mode to the live operating mode has not taken place; the frozen operating mode transitioning to the live

operating mode once motion between the frozen image and the current live image is detected.

10. The method according to claim 9, wherein the transition from the frozen operating mode to the live operating mode occurs when changes in motion between the frozen image and the current live image exceed a first threshold of measured movement.

11. The method according to claim 10, further comprising re-mapping the results from the image processing operation that are made available which are less than the first threshold of measured movement and greater than a second threshold of measured movement; wherein the first threshold of measured movement is greater than the second threshold of measured movement.

12. The method according to claim 11, further comprising re-using the results from the image processing operation that are made available which are less than the second threshold of measured movement.

13. The method according to claim 12, further re-processing selected regions of the results from the image processing operation that are greater than the first threshold of measured movement.

14. The method according to claim 13, further comprising coalescing any re-mapped results, re-used results, and re-processed results to update the processing results from the selected image processing operation.

15. The method according to claim 10, further comprising:

storing results from the selected image processing operation after each transition from the frozen operating mode to the live operating mode; and

creating a mosaic of the stored results.

16. The method according to claim 9, further comprising:

displaying the sequence of live images on an output device when in the live operating mode; and

displaying the frozen image on the output device when in the frozen operating mode.

17. The method according to claim 11, wherein the selected image processing operation is OCR.

18. A method for automatically controlling a document image capture system that communicates with a camera providing a sequence of images, said method comprising:

performing first image analysis of a first image from the sequence of images to extract document information therefrom;

performing second image analysis of said first image and a second subsequent image to detect motion between said first image to said second subsequent image, and to detect a mapping correlation between said first image and said second subsequent image; and

mapping said extracted document information from said first image to said second subsequent image, to represent extracted document information corresponding to said second subsequent image;

wherein said second image analysis comprises determining whether said motion in said image from said first image to said second subsequent image exceeds a motion threshold, and mapping said extracted document information only if said motion does not exceed said motion threshold; - and

wherein said first image analysis is performed on said second subsequent image if said motion exceeds said threshold.

19. The method according claim 18, wherein said first image analysis comprises optical character recognition of text in said image, and wherein said document information comprises decoded data derived from said optical character recognition.

20. The method according to claim 19, further comprising:

identifying text in said second subsequent image which text is not in said first image;

performing said first image analysis on said identified text in said second subsequent image to generate newly extracted information from said identified text; and

combining said mapped extracted information from said first image and said newly extracted information, to represent extracted document information corresponding to said second subsequent image.